ATTACHMENT F

PROCESS UNIT DESCRIPTIONS

EXISTING REFINERY SECTION PROCESS UNIT DESCRIPTION

Unit Name: Re-refining Section

Location: West side of the property

Activity: Re-refining recycled used oil

Operating Status: Existing

Activity Description: The primary treatment process at the Evergreen facility is re-refining recycled used oil. Sheet 1 & 2 of Attachment IV-5-1.1illustrate the re-refinery process flow diagram.

The refinery is fed with recycled used oil (non hazardous), from tank T-503 B. The recycled oil in tank T-503 B is certified as recycled oil and meets the re-refining specifications.

Refinery plant operations can be split up into two broad sections; the front end section which is fed with recycled used oil and produces lube distillate, and the a back-end section which produces products or base oils from lube distillate.

Front End Process: The recycled used oil from T-503B first fed into a proprietary (Mohawk) chemical pretreatment process in R-95, to prevent fouling and corrosion in the plant. Information on the Mohawk process is described in Attachment IV-5-5. The treated oil is heated and ~~then~~ goes through a dewatering stage in V101 where water and lighter hydrocarbons present in the oil are evaporated. The vapors emanating from V101 are cooled and the stream is taken to a knockout pot HA401. Condensed liquid from HA401 is pumped to oil water separator V701 and the non-condensable vapor is burned in the process heater H401.

After dewatering, the oil is then pumped to distillation column C101 and heated to remove light hydrocarbons (de-fueled). The light hydrocarbons are drawn from the top of the column and pumped to T-510. The dewatered, de-fueled oil is further heated in reactor R102, where the heavy metals precipitate. The oil is then pumped to the bottom of Vacuum column C201 and Thin film evaporator X201, where it is subjected to high vacuum and temperature. The evaporated oil from this system is condensed and pumped in V-202 and is called lube distillate. Heavy hydrocarbons, burnt engine oil and additives that are in the used oil do not evaporate and comes out of the thin film evaporator as asphalt and is pumped to the asphalt storage tanks T511A and T511B and then shipped off site.

Backend Process: In this process lube distillate is hydro-treated and then fractionated to give two base oil products. The lube distillate is heated and mixed with hydrogen and passed through three reactors and three heat exchangers in series. After the hydro-treating the lube distillate is then fed to fractionation system consisting of two columns C301 and C302. Heavier lube oil product (300 Neutral) is drawn from the bottom of the C301 and lighter product lube oil (100Neutral) is drawn out of the bottom of the C302. 100 Neutral is pumped to T506A, T506B, T506C and 300 Neutral is pumped to T506D, T508. The lube oil is shipped off site.

Vacuum System: Distillation columns in both front end and backend operate under vacuum. Vacuum is generated by a series of vacuum jets, which use steam as a motive fluid. In this process the steam gets mixed with the vapors from the distillation columns when the steam and vapors condense it forms an oily water mixture and shows up in vessel called Hot-well V423. Oil from V423 is skimmed from the top and sent to V701, an oil water separator. Vapors that do not condense in the vacuum system are sent to knockout pot HA-404 with vapors burnt in the process heater H401 and liquid pumped into V-701

Oil water system: Oily water from knockout pots in the re-refinery is pumped into main oil water separator V-701. Oil being lighter is skimmed from the top over to V401 vessel, which is further pumped to T-501C to be shipped offsite. Water coming out of the bottom of V701 has dissolved organics and is removed by steam stripping in C701. Vapors coming out of the top of C701 are sent to process heater H401, and water coming out of the bottom of C701 is send to Wastewater treatment system (WTS-DAF).

Maximum Capacity: 30 gallons per minute

Waste Type: 221 (Recycled used oil)

RCRA Hazardous Waste Codes: None

EVERGREEN OIL, INC.

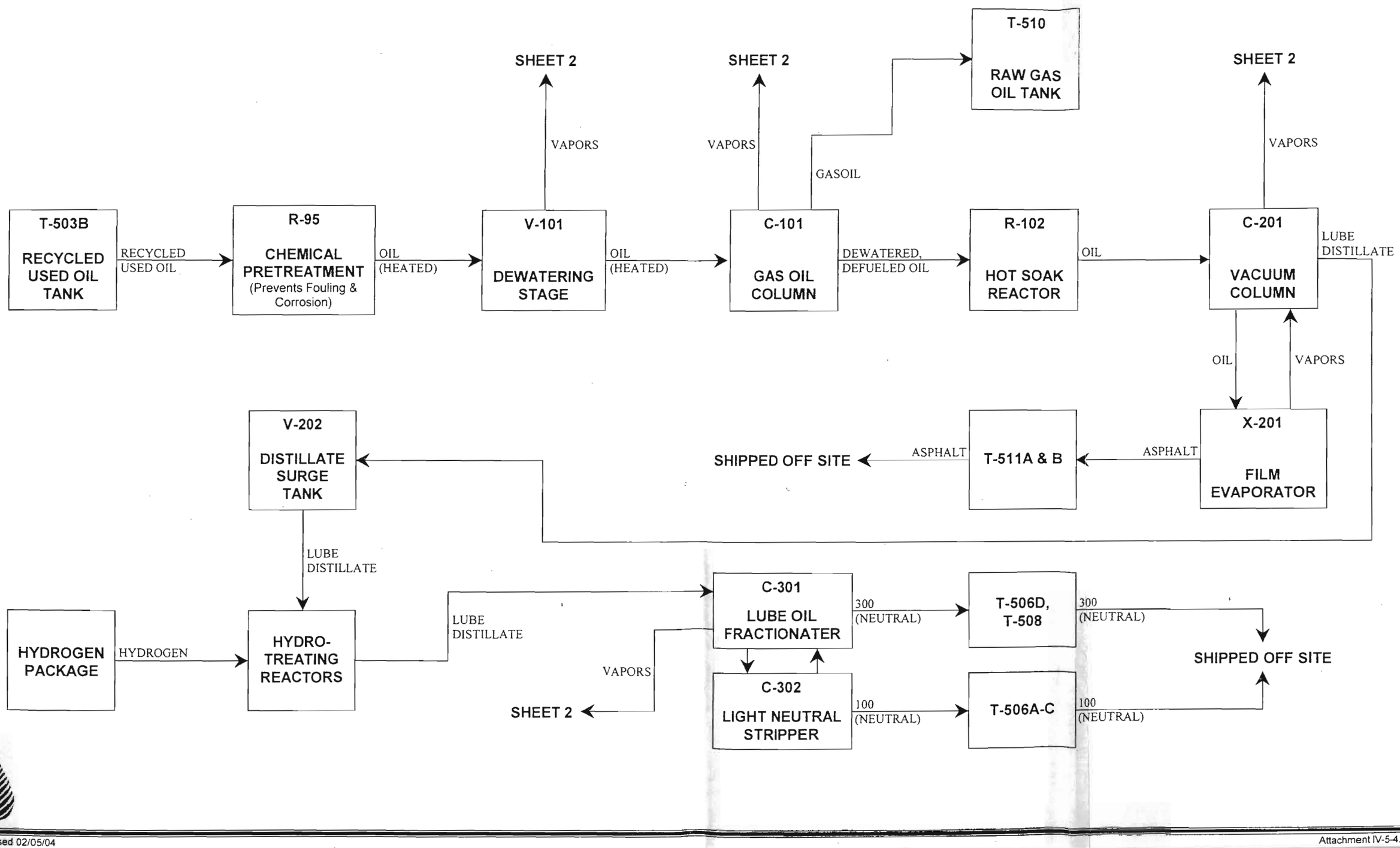
EQUIPMENT LIST
RE-REFINING SECTION

Number	Description
P503	Feed Pump
R95	Mohawk Reactor
P91	Mohawk Re-circulation Pump
E101	Mohawk Recycle Heat Exchanger
E95	Mohawk Recycle Heat Exchanger
V101	Dewatering Drum
C101	Gas Oil Column
E103	RGO Cooling Exchanger
P101	Degas Oiled Lube Pump
F101	Degas Oiled Lube Filter
E102	Degas Oiled Heat Exchanger
R102	Hot Soak Reactor
P401	Vacuum Column Feed Pump
C201	Vacuum Column
E104	Preheat Exchanger for Vacuum Column
P201	Lube Distillate Re-circulation Pump
E201	Lube Distillate Cooling Exchanger
A201	Lube Distillate Fin Fan
V202	Lube Distillate Surge Vessel
P301	Backend Feed Pump
V201	Asphalt Surge Drum
P202	Asphalt Pumps to Storage Tanks
A101	Dewatering Overhead Cooling Fin Fan
HA401	Knockout Pot
V701	Oil/Water Separator
V401	Light End Storage Vessel
C701	Stripping Column
V424	Condensate Holding Vessel

PROCESS FLOW DIAGRAM

RE-REFINERY SECTION

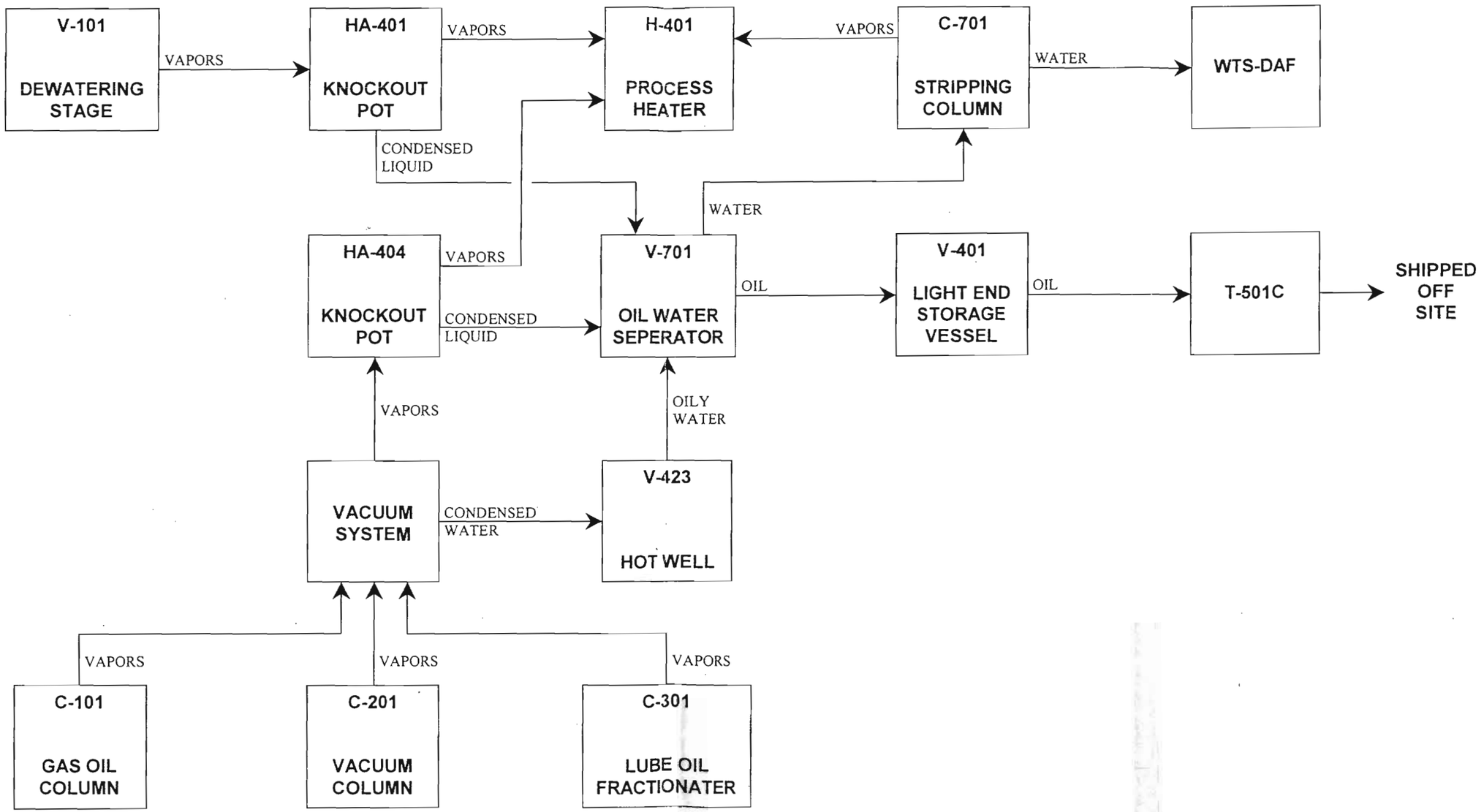
SHEET 1



PROCESS FLOW DIAGRAM

RE-REFINERY SECTION

SHEET 2



Attachment IV – 5 – 2 c & d

Existing Onsite Wastewater Treatment Unit (DAF)

WASTEWATER TREATMENT SYSTEM – DISSOLVED AIR FLOATATON (WTS – DAF)

Oil/Separator: The oil / water separator is an enhanced gravity type (APL Industries, #EG-30A) with a design flow of 40 gpm. The separator is 12'0" long, 4' wide, and 4'9" high, with a holding capacity of 1,240 gallons. The separator is designed to limit the hydrocarbon content of the water to less than 100 ppm.

Tanks T – 651A/B and T-652 receive off site Non-RCRA wastewater, oily water, process water from the refinery and wash water from the facility.

Operation: Wastewater from 651A/B and T-652 is fed to the DAF (Hydron). As many as two coagulants are injected into wastewater as it flows to the DAF. These coagulants are thoroughly mixed in the first mixing chamber of the DAF. In the second mixing chamber, an alkali is added to raise the pH of water to ensure that it meets discharge standards. A flocculent is injected into wastewater to bind coagulated solids and oil particles. A pressurized recycle stream saturated with air is injected into wastewater. As the pressure in the recycle stream is released, dissolved air comes out solution in the form of micro-bubbles. As conditioned wastewater flows into the clarification chamber of the DAF, precipitated and suspended solids and oil attach themselves to these bubbles and are floated to the top. Floated solids are skimmed into float chamber. From time to time, any settled sludge at the bottom of the clarification chamber is dumped into float chamber. Solids collected in the float chamber are pumped to tank V-652 from where they are shipped off-site. Clarified effluent flows out by gravity into downstream treatment units.

The maximum capacity of the DAF is 40 gpm, with maximum of 21 million gallons annually.

Wastewater processed at the DAF comes from
a) Refinery process water
b) Off site non-RCRA wastewater and oily water.
c) Wash water

T – 704A: Receives treated water from the DAF. Tank has a capacity of 7,000 gallons.

T – 730: This tank supplies hydrochloric acid (15%) to the chlorine dioxide generator. Capacity is 1,000 gallons.

T – 731: This tank supplies sodium hypochlorite (12 1/2) to the chlorine dioxide generator. Capacity is 2,500 gallons.

T – 732: This tank supplies sodium chlorite (25%) to the chlorine dioxide generator. Capacity is 2,500 gallons.

Chlorine Dioxide generator: Chemicals from T – 730, T – 731, and T – 732 are pumped to the generator where they are mixed to form chlorine dioxide. The chlorine dioxide is injected into the process water stream to oxidize the phenols in the wastewater.

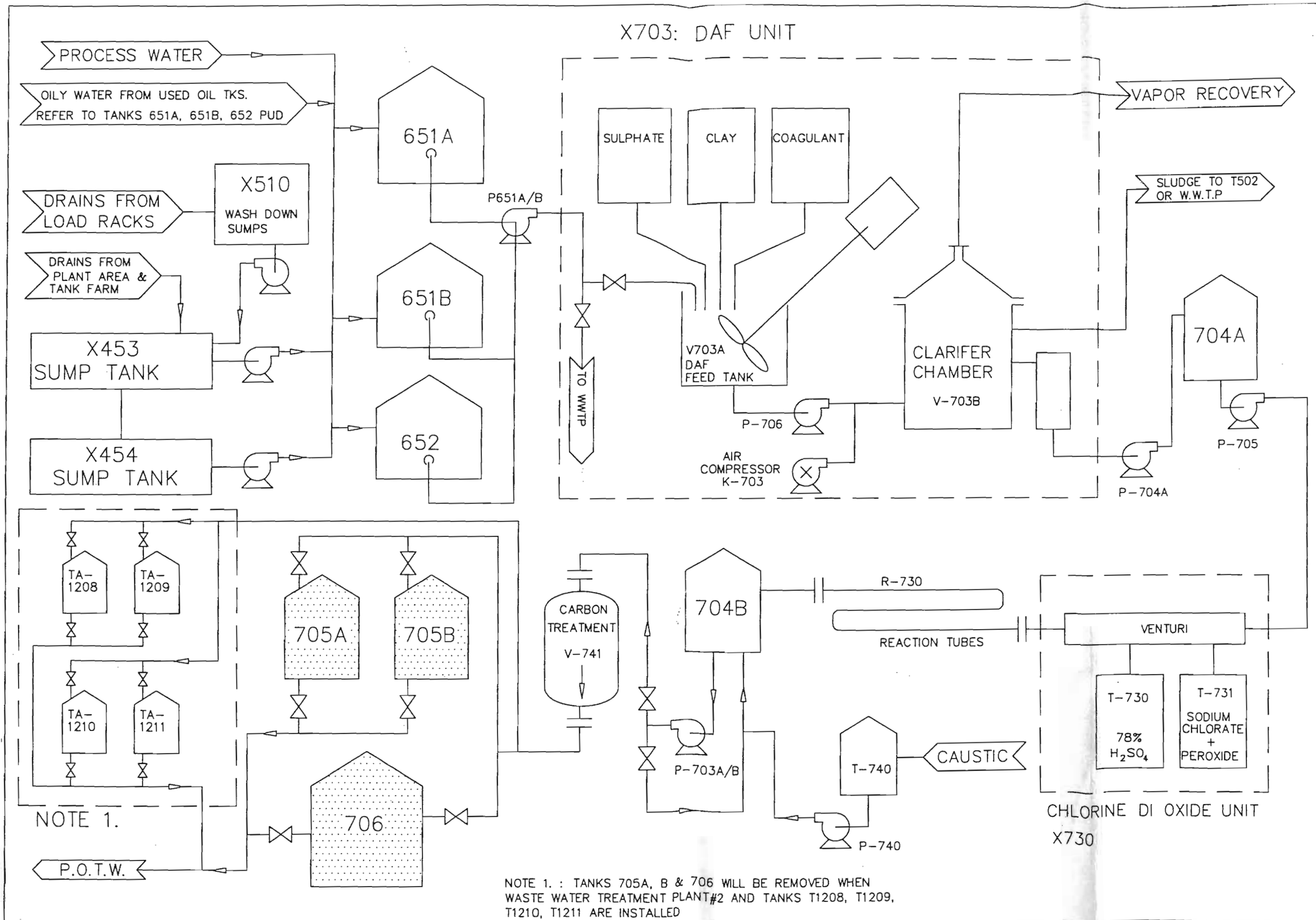
T – 704B: Receives treated water from the chlorine dioxide generator. Capacity is 6,200 gallons.

Air Stripper: The air stripper consists of a packed tower and a blower which forces air through the tower. The air strips away any remaining volatile compounds left in the process wastewater. The air containing the stripped volatiles is sent to the heater. The air stripper is located in the refinery section.

Carbon Beds: Four carbon beds, two sets of two beds each, are alternated to provide a continuous supply of active carbon for final polishing of the wastewater. These beds provide final removal of any remaining organic compounds prior to discharge to USD. Evergreen is planning to discontinue use of the carbon beds in the future when the air stripper has demonstrated reliability and effectiveness for an extended period of time.

The treated water is discharged to the sewer by permit, and the concentration of contaminants must be below the hazardous characteristic limits.

For more details, see process units description # 8 & 9



NOTE 1. : TANKS 705A, B & 706 WILL BE REMOVED WHEN WASTE WATER TREATMENT PLANT#2 AND TANKS T1208, T1209, T1210, T1211 ARE INSTALLED

DRN.	YPD		DATE	JAN, 14 2004	WASTEWATER TREATMENT SYSTEM (WTS-DAF)
CHD.	NW		SCALE	NTS	Drawing No: PFD 8OF8
APP.	NW		REV.	1.1	FILE NAME: Plant WT PROPOSED.dwg

Evergreen Oil Inc.
6880 Smith Avenue, Newark, CA 94560
Tel: 510 795 4400 Fax: 510 791 0136

EQUIPMENT LIST IN WATER TREATMENT SYSTEM (WTS-DAF)

	TAG NAME	DESCRIPTION	SPECIFICATION
1	P-651A/B	DAF feed pumps, Price make	5hp pumps, 40 GPM, 1.5"x1"
2	X-703	DAF Package, Hydron make	
3	V-703A	DAF feed tank, Carbon Steel with Epoxy paint	100 Gallon
4	P-706	Clarifier feed Pump	5Hp, 2"x1.5"
5	K-703	Air compressor	70 psi, 3hp
6	V-703B	Clarifier chamber, Carbon Steel with Epoxy paint	1000 Gallon
7	P-704A	Transfer pump DAF to intermediate storage tank T704A,	3hp
8	T-704A	Intermediate water storage tank after DAF, MOC Polypropylene	5000 Gallon
9	P-705	Transfer Pump T-704A to X-730, Goulds Booster pump	3hp, 40 GPM
10	X-730	ClO_2 Chlorine Di Oxide Generation Unit, Akzo/Altivia Make	
11	T-730	78% Sulphuric Acid Storage Tank, MOC: PP	1500 Gallon
12	T-731	25% Purate (Sodium Chlorate) Storage Tank, MOC: PP	4500 Gallon
13	R-730	Reaction Tubes	8" x 20' x 3nos
14	T-704B	Intermediate water storage tank after ClO_2 treatment	7000 Gallon
15	T-740	Caustic Storage tank, MOC: SS	220 Gallon
16	P-740	Caustic injection pump	3/4 hp, 100 GPH
17	P-703A	Transfer pump for Carbon Treatment, Price make	5 Hp, 1.5" x 1"
18	P-703B	Transfer pump for Carbon Treatment, Goulds make	10 HP, 1.5 " x 1"
19	V-741	Carbon Bed Capacity, MOC: Carbon Steel with epoxy paint	1600 Lbs

HyDron Treatment Technologies, LLC
3539 s. Main St. Salt Lake City, Utah 84115 801-268-9988 phone, 801-268-9991 fax

Pilot DAF Specification **Unit: 96PLT HR 06**
Design Basis

Unit Diameter	6	ft.
Nominal Flow Rate:	40	gpm
Nominal Recycle Flow Rate	12	gpm
Combined Flow Rate	52	gpm
Effective Flotation Area	25	ft^2
Hydraulic Loading Rate	2.1	gpm/ ft^2

Electrical Requirements/Specifications

Specifications:	230 VAC, 3 phase, 60 HZ, 4 Wire (requires a neutral leg)
Panel Enclosure	Nema 4
Main Circuit Breaker	Amperage to be determined
Electric Motors	TEFC

Requirements:

Total Horsepower	Approximately 11.5 Hp
Compressor	5 Hp
Recycle Pump	5 Hp
Coagulation Mixer(s)	¼ Hp
Coagulant Pump	Fractional HP
DAF Drive	½ Hp
Polymer Mixer	¼ Hp
Polymer Pump	Fractional Hp

Process Connections:

Influent:	Directly to coagulation tank.
Effluent	4" ANSI flange (at times adapted to 4" NPT)
Bottom Drain (sludge)	3" ANSI flange (at times reduced to 2" NPT)
Solids discharge"	4" ANSI flange (drops into collection tank.
Polymer Make Up Water	½" NPT

Chemical System

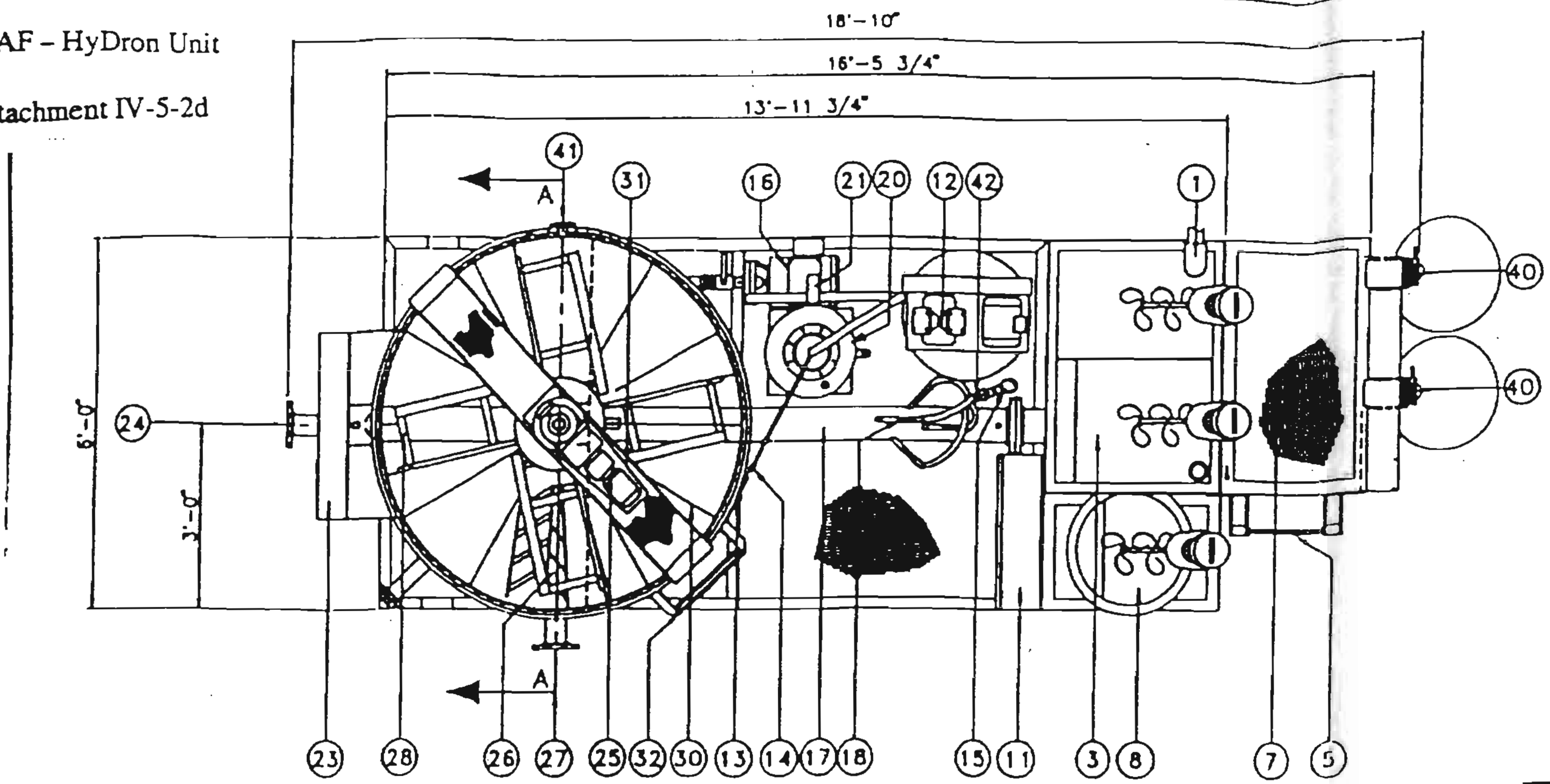
Coagulation Tanks	Two (2) 140 gallon chambers each with a gear reduced 420 rpm agitator.
Polymer Tank:	Nominal capacity 60 gallons with agitator and eductor.
Polymer Pumping System	LMI Metering pump, calibration cylinder, and post dilution water.

Other Features:
Recycle Flow Meter
Timer Controlled Skimmer Drive
Automatic, timer controlled bottom solids drain valve

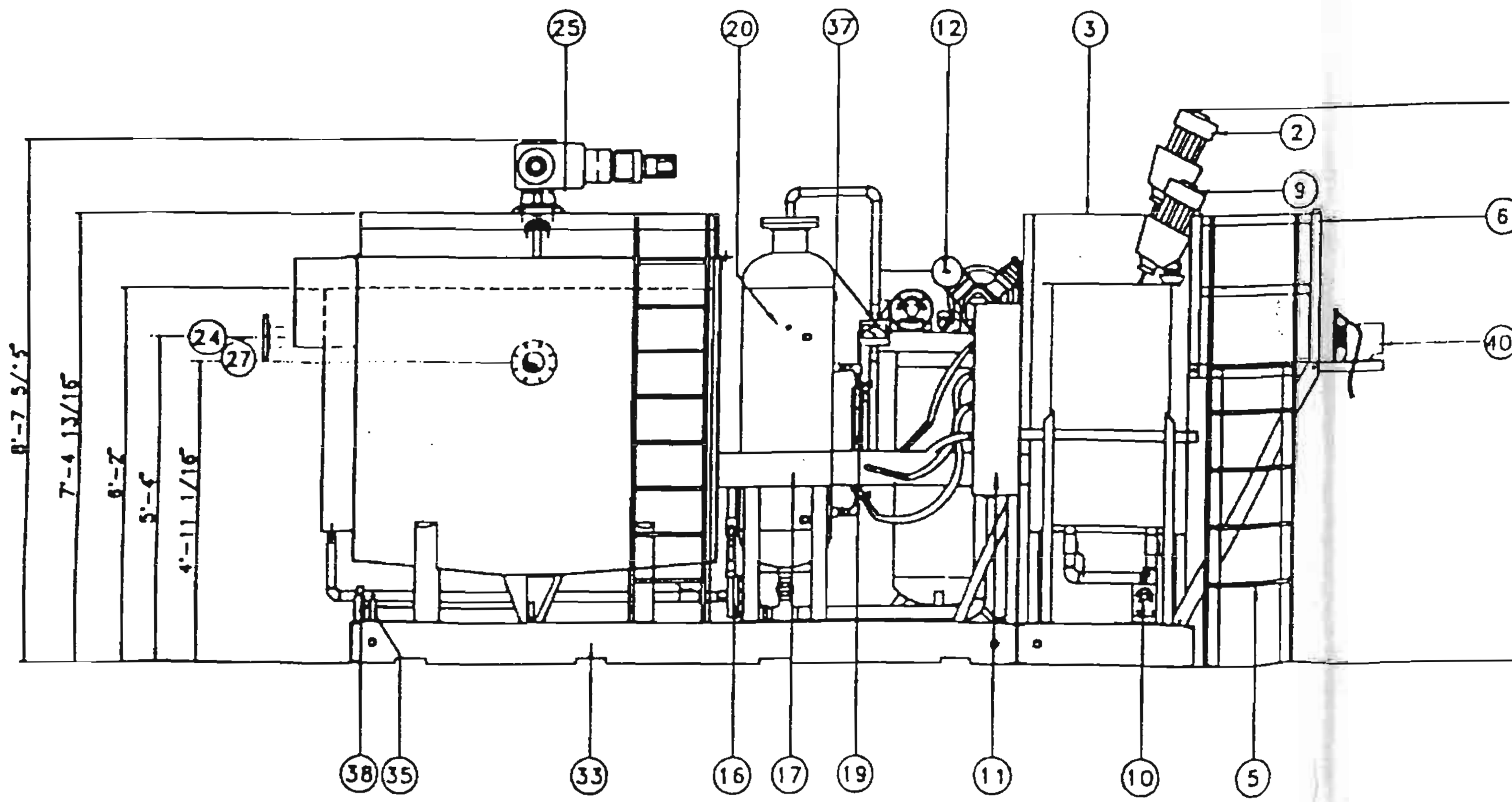
Skid Mounted Unit	Skid Dimensions:	
	Width	6'-0"
	Length	18 ft.
	Height	8 ft. – 3 in.
Approximate Shipping weight:		8,000 #
Approximate Operating Weight:		20,000 #

DAF - HyDron Unit

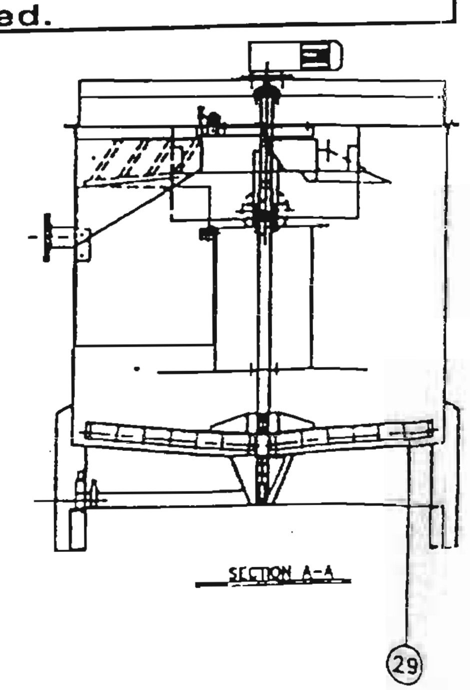
Attachment IV-5-2d



PLAN VIEW



ELEVATION VIEW



SECTION A-A

NOTES

1. CETCO-HYDRON WILL FURNISH ONE (1) COMPLETE 6'-0"ø 304 STAINLESS STEEL HIGH RATE DISSOLVED AIR FLOTATION SYSTEM AS SHOWN AND NOTED ON DRAWING D101.
2. ALL REMAINING PARTS AND EQUIPMENT WILL BE MADE OF SA-36 CARBON STEEL UNLESS OTHERWISE NOTED.
3. ALL FABRICATED CARBON STEEL SURFACES ARE ABRASIVE SANDBLASTED TO A NEAR WHITE METAL CONDITION (SSPC-SP-10) SURFACE PREPPED WITH ONE (1) COAT OF INDURALL (OR EQUAL) PERMA CLEAN II PRIMER TO 3-4 MILS DFT AND RECEIVE TWO (2) COATS OF INDURALL (OR EQUAL) SERIES HI-BUILD EPOXY TO 4-5 MILS DFT FOR A TOTAL OF 11-14 MILS DFT.
4. ALL WETTED CARBON STEEL SURFACES RECEIVE (2) GLASS FLAKE TAR EPOXY (TOTAL OF 12-14 MILS)
5. ALL PIPE FLANGES ARE AMERICAN STANDARD FLANGE FACINGS (CLASS 150).
6. ALL THREADED PIPE CONNECTIONS ARE AMERICAN STANDARD FLANGE FACINGS (CLASS 150).
7. ELECTRICAL POWER REQUIREMENTS: 460 VAC/3ø/60 Hz.
8. FASTENERS ARE STAINLESS STEEL (SUBMERGED LOCATIONS) AND ZINC PLATED STEEL (NON-SUBMERGED LOCATIONS).
9. ANCHOR BOLTS ARE NOT FURNISHED BY CETCO-HYDRON.
10. THE AIR ABSORPTION TANK IS AN A.S.M.E. CODE (SECTION VIII, DIVISION 1) CERTIFIED PRESSURE VESSEL.
11. THE SHIPPING WEIGHT IS 10,000 LBS APPROX. THE OPERATION WEIGHT IS 22,000 LBS APPROX.

NOTE: This drawing is submitted for information only. Some components shown may not be included with the system proposed and the system size may not be the same as proposed.

ITEM	QTY.	DESCRIPTION
1	1	INFLUENT BY CUSTOMER
2	2	COAGULATION MIXER, 1/4 HP 120 VAC\1ø\60 Hz
3	1	COAGULATION TANK, DUAL CHAMBER
		200 GALLON EACH CHAMBER 304 S.S.
4	-	
5	1	COAGULATION TANK LADDER
6	1	COAGULATION TANK HANDRAILS
7	1	COAGULATION TANK WALKWAY
8	1	POLYMER TANK, 80 GALLON CAPACITY (C.S.)
9	1	POLYMER MIXER, 3/4 HP 120VAC/1ø/60HZ
10	1	POLYMER FEED PUMP, 120VAC/1ø/60HZ – LMI
11	1	ELECTRICAL CONTROL PANEL, 460 VAC/3ø/60Hz
12	1	AIR COMPRESSOR, 5 HP 460VAC/3ø/60 Hz
13	1	FILTER/ REGULATOR 1/2"ø NPT
14	1	SOLENOID VALVE, 1/2"ø NPT 120 VAC/1ø/60HZ
15	1	AIR RELEASE ASSEMBLY
16	1	RECYCLE PUMP, 5 HP 460 VAC/3ø/60Hz
17	1	MIX CHAMBER, 6ø 304 STAINLESS STEEL
18	1	MIX CHAMBER ISOLATION VALVE 1"ø BALL VALVE
19	1	SIGHT GLASS w/ 307 S.S. VALVES
20	1	AIR ABSORPTION TANK, 18"ø 304 STAINLESS STEEL
21	1	MAGNETROL LEVEL SWITCH, 120VAC/1ø/60Hz
22	-	
23	1	WEIR BOX, 304 S.S.
24	1	CLARIFIED EFFLUENT, 4"ø 150# F.F. FLANGE
25	1	SKIMMER DRIVE, 1/2 HP 460VAC/3ø/60Hz
		SEW EURODRIVE
26	1	FLOAT COLLECTION CHAMBER w/FLOAT RAMP 304 S.S.
27	1	FLOAT OUTLET, 4"ø F.F. FLANGE
28	4	FLOAT SKIMMER W/ BUNA WIPER
29	2	BOTTOM SCRAPER RAKE ARM W/SQUEEGEES 304 S.S.
30	12	LAMELLA, POLYPROPYLENE
31	1	DAF DRIVE BRIDGE
32	1	DAF TANK LADDER
33	1	STRUCTURAL SKID
34	-	
35	1	SLUDGE DISCHARGE, 3"ø F.F. FLANGE
36	-	
37	1	RECYCLE FLOW METER
38	1	PNEUMATIC KNIFE GATE VALVE, 3"ø
		OPENED/CLOSED TIMER CONTROLLED
39	-	
40	2	CHEMICAL FEED PUMP, 120VAC/1ø/60HZ – LMI
41	1	FEEDWELL DRAIN, 2"ø F.F. FLANGE 150#
42	4	AIR RELEASE VALVE, 3/4"ø GLOBE VALVE

REV.	DESCRIPTION	DATE
BY		

HyDRON

HR 06 II
6' DAF SYSTEM
GENERAL ARRANGEMENT DRAWING

A. JAMBAS
M. VERA
3-19-97
3/4" = 1'
1
HR06IID101

EXISTING PROCESS UNIT DESCRIPTION

Unit Name: West Loading/Unloading Area

Location: West side of tank farm containment, adjacent.

Activity Type: Loading and unloading of used oil and antifreeze
Loading of lube oil, recycled fuel oil, asphalt products

Operating Status: An existing unit.

Activity Description: Trucks are parked in the area and waste is transferred using hose connections to the tank farm pumping system and pumps, or the pumps on board the trucks. Material is transferred to receiving tanks T501 A, T501 B, T501 D, T512 A and T512 B. Waste and product liquids are also transferred to trucks from the tank farm tanks while parked in the area.

Physical Description: The west loading/unloading is comprised of two separate sub-areas: (1) The existing collection truck unloading area, which measures approximately 40 feet by 100 feet: and (2) the transport truck loading and unloading area which measures approximately 50 feet by 80 feet. Both areas are paved with concrete and are provided with a spill control drainage system which drains to X-510 (containment sump). The transport truck sub-area is equipped with two truck scales and overhead loading arms for transferring products and low volatility waste. Both sub-areas are covered an open-sided roof structure. Grounding and bonding devices are provided.

Maximum Capacity: The bobtail sub-area will accept up to six trucks at one time. The transport sub-area will accept two semi-trailer trucks.

Waste Type: CA used oil (221) and waste ethylene glycol (134)

RCRA Hazardous Waste Codes: None

Process Unit Description # 25

Sump Tank X-510

Unit Name: Oily and Wash water Collection System

Location: North west corner of the tank farm

Activity: Collection of storm water and wash water from facility housekeeping

Operating Status: Existing

Activity Description: X-510 receives oily and wash water from the west unloading/loading area, laboratory in office building, maintenance shop floor drain, truck and bobtail west loading/unloading area, truck wash in the west loading/unloading area, and the filter wash Pit. The water gravity flows to X-510. X-510 sump tank has a 900-gallon operating capacity and is mounted in a concrete (vault) pit. The sump tank is provided with a board mounted High Level Alarm, LAH-676. An air operated Pump, P-510, is provided to transfer the oily water from the sump tank to the oil/water separator tank X-453.

In case the pump of X-510 fails, X-510 overflows to the detention pond in the west loading/unloading area.

Physical Description: Tanks X-510 is made of fiberglass structure and are installed below grade in an open concrete sump for containment. X-510 is W 5'8" x H 3' 10" x L 6'4" (1000 gallons). The tanks are sitting on wooden blocks above the floor of the concrete sump.

Maximum Capacity: 200 gallons a day

Air Emissions: None

Waste Types: Used oil and oily water and non-RCRA contaminated petroleum products.

California Waste Codes: 132, 133, 134, 135, 221, 222, 223, 241, 331, 612

RCRA Hazardous Waste Codes: None

DETENTION SUMP # 2

WEST TRUCK LOADING/UNLOADING CONTAINMENT SUMP:

20,000 gallon cast in place concrete vault is 12' x 20' x 11'- 2" deep with the vault floor sloping to drainage/dewatering sump. A water stop is embedded in concrete at construction joint between the bottom slab and walls to prevent passage of fluid through the joint. The sump is suitably designed to contain and pump the oil/water mixture in case of a spill. The concrete surface does not have any voids and there are no cracks or leak of any nature. This sump is pumped to oil/water separator **X-453** or a vacuum truck.

This containment sump and associated piping is kept empty at all times except during the rainy season where the rainwater will be removed daily. The detention sump is used for secondary containment for the West Loading/Unloading area. The West Loading/Unloading area is covered with a roof. The volumes of the trucks that use the West Loading/Unloading area vary between 2,500 and 6,500 gallons. As you will note from the description of the detention sump above it has the capacity to contain any spilled volume from the trucks. All underground piping is sloped towards the detention sump and sumps. Products or hazardous wastes are not transferred in underground piping.

File Nabil: DETENTION SUMP # 2

Process Unit Description # 24

Storm and Oily Water Collection System (X-453 & X-454)

Unit Name: Storm and oily water Collection System

Location: North west corner of the tank farm

Activity: Collection of storm water and wash water from facility housekeeping

Operating Status: Existing

Activity Description: The system consists of two fiberglass tanks, X-453 and X-454. X-453 receives oily wash water from the west loading/unloading area, through X-510 sump tank. X-453 also receives used oil samples from the refinery control room. The water from X-453 is pumped to tank T-651A and the oil is pumped to T-502.

X-454 receives storm and wash water from the refinery process area and the tank farm. The storm and wash water from the process and tank farm containment areas gravity flow to the sump tanks. The water from X-454 is pumped to T-651A.

Physical Description: Tanks X-453 and X-454 are made of fiberglass structure and are installed below grade in an open concrete sump for containment. X-454 is W 9'3" x H 6' x L 10'6" (4360 gallons and X-453 is W 4'3" x H 4'6" x L 12'7" (1800 gallons) The tanks are sitting on wooden blocks above the floor of the concrete sump.

Maximum Capacity: 2000 gallons a day

Air Emissions: The sump tanks are vented to a 55-gallon activated carbon drum or the facility vapor recovery system.

Waste Types: Oily water and non-RCRA contaminated petroleum products.

California Waste Codes: 132, 133, 134, 135, 221, 222, 223, 241, 331, 612

RCRA Hazardous Waste Codes: None

EXISTING PROCESS UNIT DESCRIPTION

Unit Name: Tank T-501 A (Proposed: T-512B)

Location: West end of the Tank farm

Activity Type: Used oil and contaminated petroleum products storage
Testing of used oil for recycling

Operating Status: An existing unit.

Activity Description: Tank T-501A is operated as a pre-select tank and receives used oil and non-RCRA contaminated petroleum products from offsite sources and meet the definition in Section 25250 (1)(a)(7)(A) of the H&SC. Waste is received from trucks parked in the west loading/unloading area.

Incoming wastes is tested before unloading into the tank. Used oil that does not meet the acceptance criteria will be shipped off site. If the waste meets the facility acceptance criteria then it is unloaded. While in the tank, used oil is also tested to certify that it meets the recycled used oil specifications in H&SC 25250.1(a)(3)(A). The used oil and contaminated petroleum products are pumped from tank T-501A to the fuel blending tanks: T-502, T-505, T-507, and T-509. If the used oil meets the recycled oil standards it will be pumped to tank T-503A. If the used oil meets the recycled oil standards it will be pumped to tank T-503A. It the recycled oil also meets the re-refining specifications it will be pumped directly to the refinery feed tank T-503B. Used oil, recycled oil, and contaminated petroleum products may be shipped offsite by truck from tank T-501A.

Physical Description: Storage tank T-501A is steel above ground cylindrical tank with a shallow cone roof and flat bottom. The tank measures 11'11" in diameter and 12 feet high with 12 inches of freeboard. The tank is on a concrete pad foundation covered with a synthetic membrane barrier for leak detection. Four equally spaced anchor bolts anchor the tank.

Total tank farm containment area is 29,173 square feet. Perimeter walls are 33 inches high.

The tank operates at atmospheric temperature and pressure and is vented to the facility vapor recovery system.

Maximum Capacity: 9158 gallons

Waste Type: 221 (Used oil, recycled oil, contaminated petroleum products)

RCRA Hazardous Waste Codes: None

EXISITNG PROCESS UNIT DESCRIPTION

Unit Name: T-501B (Proposed T-512 C)

Location: West end of the Tank farm

Activity Type: Used oil and contaminated petroleum products storage
Testing of used oil for recycling

Operating Status: An existing unit.

Activity Description: Tank T-501B is operated as a pre-select tank and receives used oil and non-RCRA contaminated petroleum products from offsite sources and meet the definition in Section 25250 (1)(a)(7)(A) of the H&SC. Waste is received from trucks parked in the west loading/unloading area.

Incoming wastes is tested before unloading into the tank. Used oil that does not meet the acceptance criteria will be shipped off site. If the waste meets the facility acceptance criteria then it is unloaded. While in the tank, used oil is also tested to certify that it meets the recycled used oil specifications in H&SC 25250.1(a)(3)(A). The used oil and contaminated petroleum products are pumped from tank T-501B to the fuel blending tanks: T-502, T-505, T-507, and T-509. If the used oil meets the recycled oil standards it will be pumped to tank T-503A. If the used oil meets the recycled oil standards it will be pumped to tank T-503A. It the recycled oil also meets the re-refining specifications it will be pumped directly to the refinery feed tank T-503B. Used oil, recycled oil, and contaminated petroleum products may be shipped offsite by truck from tank T-501A.

Physical Description: Storage tank T-501B is steel above ground cylindrical tank with a shallow cone roof and flat bottom. The tank measures 11'11" in diameter and 12 feet high with 12 inches of freeboard. The tank is on a concrete pad foundation covered with a synthetic membrane barrier for leak detection. Four equally spaced anchor bolts anchor the tank.

Total tank farm containment area is 29,173 square feet. Perimeter walls are 33 inches high.

The tank operates at atmospheric temperature and pressure and is vented to the facility vapor recovery system.

Maximum Capacity: 9158 gallons

Waste Type: 221 (Used oil, recycled oil, contaminated petroleum products)

RCRA Hazardous Waste Codes: None

EXISTING PROCESS UNIT DESCRIPTION

Unit Name: T-501 C (Proposed: T-800)

Location: West end of the tank farm

Activity Type: Storage of halogenated hydrocarbons, RCRA Fuels

Operating Status: An existing unit.

Activity Description: Tank T-501C stores on site generated halogenated hydrocarbons. The halogenated hydrocarbon fuel is generated in the re-refinery section. The halogenated fuel oil is pumped from the re-refinery to T-501C. The halogenated fuel is shipped off site in truck as hazardous waste. A pump and piping are dedicated for the service of the halogenated fuel.

Physical Description: Storage tank T-501C is steel above ground cylindrical tank with a shallow cone roof and flat bottom. The tank measures 11'11" in diameter and 12 feet high with 12 inches of freeboard. The tank is on a concrete pad foundation covered with a synthetic membrane barrier for leak detection. Four equally spaced anchor bolts anchor the tank.

Total tank farm containment area is 29,173 square feet. Perimeter walls are 33 inches high.

The tank operates at atmospheric temperature and pressure and is vented to the facility vapor recovery system.

Maximum Capacity: 9158 gallons

Waste Type: Halogenated hydrocarbons

RCRA Hazardous Waste Codes: D001

EXISTING PROCESS UNIT DESCRIPTION

Unit Name: T-501 D (Proposed Number: T-500)

Location: West end of the Tank farm

Activity Type: Storage in a tank
Waste Antifreeze Consolidation (Ethylene Glycol)
Gravity Separation

Operating Status: An existing unit.

Activity Description: Tank T-501D is operated as a receiving tank for waste ethylene glycol from offsite sources. Waste is received from trucks parked in the west loading/unloading area. Used oil recovered from the glycol mixture by gravity separation is shipped off site as hazardous waste. The waste ethylene glycol is shipped offsite by truck to recycling facilities.

Physical Description: Tank T-501D is steel above ground cylindrical tank with a shallow cone roof and flat bottom. The tank measures 11'11" in diameter and 12 feet high with 12 inches of freeboard. The tank is on a concrete pad foundation covered with a synthetic membrane barrier for leak detection. Four equally spaced anchor bolts anchor the tank.

Total tank farm containment area is 29,173 square feet. Perimeter walls are 33 inches high.

The tank operates at atmosphere temperature and pressure and is vented to the facility vapor recovery system.

Maximum Capacity: 24,532 gallons

Waste Type: Waste ethylene Glycol (Antifreeze).

California Hazardous Waste Codes: 134

RCRA Hazardous Waste Codes: None

PROCESS UNIT DESCRIPTION

Unit Name:	Tank T-502	(Proposed: T-502)
Location:	Center section of the tank farm	
Activity Type:	Storage in a tank Certification (recycling) of used oil	
Operating Status:	An existing unit.	
Activity Description:	Tank T-502 is operated as an intermediate storage and blending tank for used oil. Used oil and contaminated petroleum products are pumped to the tank from the pre-select tanks T-501A-B and T-512A and B. Used oil or contaminated petroleum products may also be transferred from intermediate tanks including T-505, T-507, T-509, and T-503A to tank T-502. The content of the tank is sampled and to check if it meets the recycled used oil specifications in H&SC 25250.1(a)(3)(A). If the used oil meets the recycled used oil specifications, then it will be pumped to tank T-503A. If the used oil does not meet the recycled used oil specifications, then it will be shipped off site in trucks as hazardous waste. If the used oil in tank T-502 meets the recycled oil specifications and the re-refinery standards then it will be pumped to the refinery feed tanks T-503B.	
Physical Description:	Storage tank T-502 is steel above ground cylindrical tank with a shallow cone roof and flat bottom. The tank measures 20'8" in diameter and 20 feet high with 12 inches of freeboard. The tank is on a concrete pad foundation covered with a synthetic membrane barrier for leak detection. Four equally spaced anchor bolts anchor the tank. Total tank farm containment area is 29,173 square feet. Perimeter walls are 33 inches high. The tank operates at atmospheric temperature and pressure and is vented to the facility vapor recovery system.	
Maximum Capacity:	47,632 gallons	
Waste Type:	221 (Used oil, recycled oil, and contaminated petroleum products)	

RCRA Hazardous Waste Codes: None

EXISTING PROCESS UNIT DESCRIPTION

Unit Name: Tank T-503A (Proposed: T-503A)

Location: East end of the tank farm

Activity Type: Storage in a tank
Gravity separation and blending
Certification of used oil

Operating Status: An existing unit.

Activity Description: Tank T-503A receives and stores used oil and contaminated petroleum products from pre-select tanks T-501A-B and T-512A and B, T-502, T-505, T-507, and T-509. The contents of the tank are tested to certify that the used oil meets the recycled oil specifications in H&SC 25250.1(a)(3)(A).

When the used oil is certified as recycled used oil it may be pumped to tanks T-502, T-505, T-509, and T-507. If T-503A meets the re-refining specifications, it may be pumped to the refinery feed tank T-503B.

Recycled used oil in T-503A may be shipped offsite by truck or rail.

Physical Description: Tank T-503A is steel above ground cylindrical tank with a shallow cone roof and flat bottom. The tank measures 33'8" in diameter and 30 feet high with 12 inches of freeboard. The tank is on a concrete pad foundation covered with a synthetic membrane barrier for leak detection. 16 equally spaced anchor bolts anchor the tank.

Total tank farm containment area is 29,173 square feet. Perimeter walls are 33 inches high.

The tank operates at atmospheric temperature and pressure and is vented to the facility vapor recovery system.

Maximum Capacity: 192,993 gallons

Waste Type: 221 (used oil, Recycled oil, contaminated petroleum products.

RCRA Hazardous Waste Codes: None

EXISTING PROCESS UNIT DESCRIPTION

Unit Name: Tank T-503B (Proposed: T-503B)

Location: Tank farm containment.

Activity Type: Storage in a tank
Certification (recycling) of used oil

Operating Status: An existing unit.

Activity Description: Tank T-503B is used as a refinery feed tank and stores recycled used oil. T-503 B receives recycled used oil from the pre-select tanks T-501A-B and T-512A and B, T-502, T-503A, T-505, T-507, and T-509. The contents of the tank are sampled and tested daily to certify that the oil meets the recycled used oil specifications in H&SC 25250.1(a)(3)(A).

Recycled used oil may be pumped from tank T-503 B to tanks T-502, T-505, T-509, and T-507 and T-503A. T-503 B may also be transferred offsite by truck or rail.

Physical Description: Tank T-503B is steel above ground cylindrical tank with a shallow cone roof and flat bottom. The tank measures 33'8" in diameter and 30 feet high with 12 inches of freeboard. The tank is on a concrete pad foundation covered with a synthetic membrane barrier for leak detection. 16 equally spaced anchor bolts anchor the tank.

Total tank farm containment area is 29,173 square feet. Perimeter walls are 33 inches high.

The tank operates at atmospheric temperature and pressure and is vented to the facility vapor recovery system.

Maximum Capacity: 192,993 gallons

Waste Type: 221 (Used oil, Recycled oil, contaminated petroleum products)

RCRA Hazardous Waste Codes: None

EXISTING PROCESS UNIT DESCRIPTION

Unit Name: Tank T-505 (Proposed: T-505)

Location: Center section of the tank farm

Activity Type: Storage in a tank
Certification (recycling) of used oil

Operating Status: An existing unit.

Activity Description: Tank T-505 is operated as an intermediate storage and blending tank for used oil. Used oil and contaminated petroleum products are pumped to the tank from the pre-select tanks T-501A-B and T-512A and B.
Used oil or contaminated petroleum products may also be transferred from intermediate tanks including T-502, T-507, T-509, and T-503A to tank T-505. The content of T-505 is sampled and to check if it meets the recycled used oil specifications in H&SC 25250.1(a)(3)(A). If the used oil meets the recycled used oil specifications, then it will be pumped to tank T-503A. If the used oil does not meet the recycled used oil specifications, then it will be shipped off site in trucks as hazardous waste.

If the used oil in tank T-505 meets the recycled oil specifications and the re-refinery standards, it will be pumped to the refinery feed tank T-503B.

Physical Description: Tank T-505 is steel above ground cylindrical tank with a shallow cone roof and flat bottom. The tank measures 20'8" in diameter and 20 feet high with 12 inches of freeboard. The tank is on a concrete pad foundation covered with a synthetic membrane barrier for leak detection. Four equally spaced anchor bolts anchor the tank.

Total tank farm containment area is 29,173 square feet. Perimeter walls are 33 inches high.

The tank operates at atmospheric temperature and pressure and is vented to the facility vapor recovery system.

Maximum Capacity: 47,632 gallons

Waste Type: 221 (Used oil, recycled oil, and contaminated petroleum products)

RCRA Hazardous Waste Codes: None

PROCESS UNIT DESCRIPTION

Unit Name: Tank T-507 (Proposed: T-507)

Location: Center section of the tank farm

Activity Type: Storage in a tank
Certification (recycling) of used oil

Operating Status: An existing unit.

Activity Description: Tank T-507 is operated as an intermediate storage and blending tank for used oil. Used oil and contaminated petroleum products are pumped to the tank from the pre-select tanks T-501A-B and T-512A and B.
Used oil or contaminated petroleum products may also be transferred from intermediate tanks including T-505, T-502, T-509, and T-503A to tank T-507. The content of the tank is sampled and to check if it meets the recycled used oil specifications in H&SC 25250.1(a)(3)(A). If the used oil meets the recycled used oil specifications, then it will be pumped to tank T-503A. If the used oil does not meet the recycled used oil specifications, then it will be shipped off site in trucks as hazardous waste.

If the used oil in tank T-507 meets the recycled oil specifications and the re-refinery standards then it will be pumped to the refinery feed tanks T-503B.

Physical Description: Storage tank T-507 is steel above ground cylindrical tank with a shallow cone roof and flat bottom. The tank measures 20'8" in diameter and 20 feet high with 12 inches of freeboard. The tank is on a concrete pad foundation covered with a synthetic membrane barrier for leak detection. Four equally spaced anchor bolts anchor the tank.

Total tank farm containment area is 29,173 square feet. Perimeter walls are 33 inches high.

The tank operates at atmospheric temperature and pressure and is vented to the facility vapor recovery system.

Maximum Capacity: 47,632 gallons

Waste Type: 221 (Used oil, recycled oil, and contaminated petroleum products)

RCRA Hazardous Waste Codes: None

PROCESS UNIT DESCRIPTION

Unit Name: Tank T-509 (Proposed: T-509)

Location: Center section of the tank farm

Activity Type: Storage in a tank
Certification (recycling) of used oil

Operating Status: An existing unit.

Activity Description: Tank T-509 is operated as an intermediate storage and blending tank for used oil. Used oil and contaminated petroleum products are pumped to the tank from the pre-select tanks T-501A-B and T-512A and B.
Used oil or contaminated petroleum products may also be transferred from intermediate tanks including T-505, T-502, T-507, and T-503A to tank T-509. The content of the tank is sampled and to check if it meets the recycled used oil specifications in H&SC 25250.1(a)(3)(A). If the used oil meets the recycled used oil specifications, then it will be pumped to tank T-503A. If the used oil does not meet the recycled used oil specifications, then it will be shipped off site in trucks as hazardous waste.

If the used oil in tank T-509 meets the recycled oil specifications and the re-refinery standards then it will be pumped to the refinery feed tanks T-503B.

Physical Description: Storage tank T-509 is steel above ground cylindrical tank with a shallow cone roof and flat bottom. The tank measures 11'11" in diameter and 12 feet high with 12 inches of freeboard. The tank is on a concrete pad foundation covered with a synthetic membrane barrier for leak detection. Four equally spaced anchor bolts anchor the tank.

Total tank farm containment area is 29,173 square feet. Perimeter walls are 33 inches high.

The tank operates at atmospheric temperature and pressure and is vented to the facility vapor recovery system.

Maximum Capacity: 24,532 gallons

Waste Type: 221 (Used oil, recycled oil, and contaminated petroleum products)

RCRA Hazardous Waste Codes: None

EXISTING PROCESS UNIT DESCRIPTION

Unit Name: Tank T-512 A (Proposed: T-651C)

Location: West end of the Tank farm

Activity Type: Used oil and contaminated petroleum products storage
Testing of used oil for recycling

Operating Status: An existing unit.

Activity Description: Tank T-501C is operated as a pre-select tank and receives used oil and non-RCRA contaminated petroleum products from offsite sources and meet the definition in Section 25250 (1)(a)(7)(A) of the H&SC. Waste is received from trucks parked in the west loading/unloading area.

Incoming wastes is tested before unloading into the tank. Used oil that does not meet the acceptance criteria will be shipped off site. If the waste meets the facility acceptance criteria then it is unloaded. While in the tank, used oil is also tested to certify that it meets the recycled used oil specifications in H&SC 25250.1(a)(3)(A). The used oil and contaminated petroleum products are pumped from tank T-501A to the fuel blending tanks: T-502, T-505, T-507, and T-509. If the used oil meets the recycled oil standards it will be pumped to tank T-503A. If the used oil meets the recycled oil standards it will be pumped to tank T-503A. It the recycled oil also meets the re-refining specifications it will be pumped directly to the refinery feed tank T-503B. Used oil, recycled oil, and contaminated petroleum products may be shipped offsite by truck from tank T-501C.

Physical Description: Storage tank T-501C is steel above ground cylindrical tank with a shallow cone roof and flat bottom. The tank measures 11'11" in diameter and 12 feet high with 12 inches of freeboard. The tank is on a concrete pad foundation covered with a synthetic membrane barrier for leak detection. Four equally spaced anchor bolts anchor the tank.

Total tank farm containment area is 29,173 square feet. Perimeter walls are 33 inches high.

The tank operates at atmospheric temperature and pressure and is vented to the facility vapor recovery system.

Maximum Capacity: 9158 gallons

Waste Type: 221 (Used oil, recycled oil, contaminated petroleum products)

RCRA Hazardous Waste Codes: None

EXISTING PROCESS UNIT DESCRIPTION

Unit Name:	Tank T-512 B	(Proposed: T-512A)
Location:	West end of the Tank farm	
Activity Type:	Used oil and contaminated petroleum products storage Testing of used oil for recycling	
Operating Status:	An existing unit.	
Activity Description:	Tank T-512 B is operated as a pre-select tank and receives used oil and non-RCRA contaminated petroleum products from offsite sources and meet the definition in Section 25250 (1)(a)(7)(A) of the H&SC. Waste is received from trucks parked in the west loading/unloading area. Incoming wastes is tested before unloading into the tank. Used oil that does not meet the acceptance criteria will be shipped off site. If the waste meets the facility acceptance criteria then it is unloaded. While in the tank, used oil is also tested to certify that it meets the recycled used oil specifications in H&SC 25250.1(a)(3)(A). The used oil and contaminated petroleum products are pumped from tank T-512 B to the fuel blending tanks: T-502, T-505, T-507, and T-509. If the used oil meets the recycled oil standards it will be pumped to tank T-503A. If the used oil meets the recycled oil standards it will be pumped to tank T-503A. It the recycled oil also meets the re-refining specifications it will be pumped directly to the refinery feed tank T-503B. Used oil, recycled oil, and contaminated petroleum products may be shipped offsite by truck from tank T-512B.	
Physical Description:	Storage tank T-501C is steel above ground cylindrical tank with a shallow cone roof and flat bottom. The tank measures 11'11" in diameter and 12 feet high with 12 inches of freeboard. The tank is on a concrete pad foundation covered with a synthetic membrane barrier for leak detection. Four equally spaced anchor bolts anchor the tank. Total tank farm containment area is 29,173 square feet. Perimeter walls are 33 inches high. The tank operates at atmospheric temperature and pressure and is vented to the facility vapor recovery system.	
Maximum Capacity:	9158 gallons	
Waste Type:	221 (Used oil, recycled oil, contaminated petroleum products)	

RCRA Hazardous Waste Codes: None

EXISTING PROCESS UNIT DESCRIPTION

Unit Name:	Existing: T-651A & B	(Proposed: T-651A & B)
Location:	West end of the tank farm	
Activity Type:	Storage in a tank Gravity separation	
Operating Status:	Existing tanks.	
Activity Description:	Tank T-651A & B receive and store oily water. Tank T-651A primarily receives process and oily water from the re-refining section and the facility plant oil/water separators X-453 and X-454. Tank T-651B receives oily water from off site sources in trucks parked in the West loading/unloading area. The trucks are tested to ensure that it meets the facility acceptance criteria. If the oily water does not meet the facility acceptance criteria it will be shipped site. Tank T-651 B may be pumped to tank T-652. Tank T-651A content is pumped to the existing onsite wastewater treatment system (DAF). Oily water from T-651A may be pumped to tank T-651B. The used oil from tank T-651B is recycled. The water is pumped to tank T-652 for off site disposal.	
Physical Description:	The tanks are steel above ground cylindrical tank with a shallow cone roof and flat bottom. The tanks measure 14' in diameter and 27' high with 6 inches of freeboard. The tanks are on a concrete pad foundation covered with a synthetic membrane barrier for leak detection. Eight equally spaced anchor bolts anchor the tanks. Total tank farm containment area is 29,173 square feet. Perimeter walls are 33 inches high.	
Maximum Capacity:	30,514 gallons	
Waste Type:	221 (Used oil, oily water)	

RCRA Hazardous Waste Codes: None

EXISITNG PROCESS UNIT DESCRIPTION

Unit Name:	Existing: T-652	(Proposed: T-652)
Location:	West end of the tank farm	
Activity Type:	Storage in a tank Gravity separation	
Operating Status:	An existing unit.	
Activity Description:	Tank T-652 receives and stores oily water from offsite generators as well as oily water generated onsite. Oily water is received from bobtail trucks parked in the west loading/unloading area. The trucks are tested before unloading into tank T-652 to ensure it meets the used oil and the facility waste acceptance criteria. If the oily water does not meet the facility acceptance criteria it will be shipped off site for disposal. Tank T-652 also receives oily washout water from cleaning vacuum trucks that previously contained Non-RCRA oily water. The tank also receives oily water from T-651A & B. Gravity separation occurs in tank T-652. The used oil is skimmed and pumped to Tank T-502 or T-507 for recycling. The wastewater from the tank is transferred offsite by truck. Wastewater from tanks T-651 A & B may also be transferred to tank T-652.	
Physical Description:	Tank T-652 is steel above ground cylindrical tank with a shallow cone roof and flat bottom. The tank measures 11'11" in diameter and 12' high with 12 inches of freeboard. The tank sits on a concrete pad foundation covered with a synthetic membrane barrier for leak detection. Four equally spaced anchor bolts anchor the tank. Total tank farm containment area is 29,173 square feet. Perimeter walls are 33 inches high. The tank operates at atmospheric temperature and pressure and is vented to the facility vapor recovery system.	
Maximum Capacity:	9,158 gallons	
Waste Type:	221 (Used oil, oily waste, non-RCRA oily water)	

RCRA Hazardous Waste Codes: None

Table 8.1

Physio-Chemical Properties* of Primary Contaminants of Potential Concern

Chemical	Melting Point (C°)	Vapor Pressure (mmHG)	Henry's Law Constant (atm-m³/mol)	Soil/Water Partition Coefficient (koc)	Water Solubility (mg/l)	Density (g/cm³)	Octanol/ Water Partition Coefficient (log kow)
Acetone	-95	182	0.000039	0.58	1000000	0.78	-0.24
Benzene	5.5	95	0.0056	62	1800	0.88	2.10
Carbon Tetrachloride	-23	90	0.03	152	790	1.59	2.64
Chloroform	-63	159	0.0037	53	7900	1.48	1.97
Dibromochloromethane			0.00078	83	4000		
Cis-1,2-Dichloroethene	-81	215	0.0041	36	3500	1.28	1.86
Dichlorobenzene,1,2-			0.0019	380	160		
Dichloroethane,1,1-	-97	230	0.0056	53	5100	1.17	1.79
Dichloroethane,1,2-	-35	61	0.00098	38	8500	1.25	1.48
Dichloroethene,1,1-	-113	591	0.026	65	2300	1.21	1.32
Ethylbenzene	-95	9.5	0.0079	200	170	0.87	3.13
Methylene Chloride	-95	349	0.09	10	13000	1.33	1.30
Methyl Ethyl Ketone			0.000027	4.5	270000		
Methylnaphthalene,2-	35	0.068	0.00029	720	26	1.01	3.86
Tetrachloroethene	-19	18	0.018	270	200	1.62	3.40
Toluene	-95	28	0.0066	140	530	0.87	2.69
Trichloroethane, 1,1,1-	-33	124	0.017	142	1300	1.33	2.49
Trichloroethane, 1,1,2-	-37	22	0.00091	75	4400	1.44	2.42
Trichloroethene	-87	74	0.01	94	1100	1.46	2.42
Trichlorofluormethane			0.097	160	1100		
Xylenes (total)		6 to 16	0.0073	200	160	0.86	3.12 to 3.20

*Note: At ambient temperatures and pressures